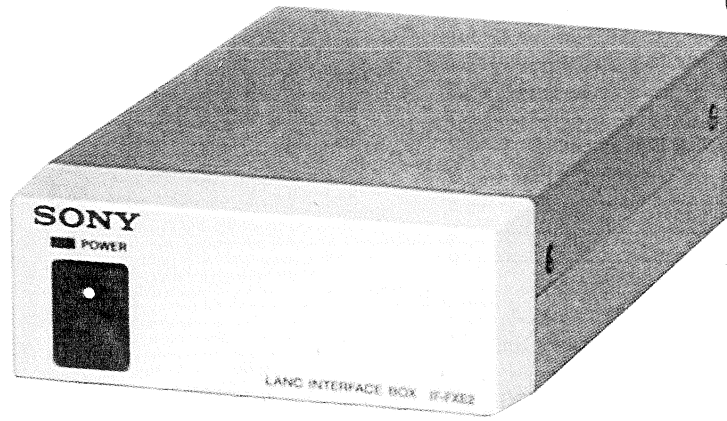
IF-FXE2

SERVICE MANUAL

US Model
Canadian Model
AEP Model



Differences Manual

- The IF-FXE2 is based on the IF-FXE1.
- This service manual describes differences between IF-FXE2 and IF-FXE1.
  Refer to IF-FXE1 SERVICE MANUAL (9-973-764-11) together with this manual when repairing the IF-FXE2.
- The differences between IF-FXE2 and IF-FXE1 are described below. +V12567

< Main Differences > The microprocessor IC101 is different. The schematic diagrams and printed wiring boards remain unchanged.

Page	IF-FXE1			IF-FXE2		
P15	1	3-942-398-21	PANEL, FRONT	1	3-942-398-31	PANEL, FRONT
	* 5	X-3942-978-1	CASE ASSY, LOWER	* 5	X-3947-203-1	CASE ASSY, LOWER
	* 6	A-7072-323-A	IF-63 BOARD, COMPLETE (US)	* 6	A-7073-026-A	IF-63 BOARD, COMPLETE (US)
	* 6	A-7072-324-A	IF-63 BOARD, COMPLETE (AEP)	* 6	A-7073-027-A	IF-63 BOARD, COMPLETE (AEP)
	* 9	3-942-396-11	CASE, UPPER	* 9	3-942-396-21	CASE, UPPER
P16	* 6	A-7072-323-A	IF-63 BOARD, COMPLETE (US) **********	*	A-7073-026-A	IF-63 BOARD, COMPLETE (US) **********
	* 6	A-7072-324-A	IF-63 BOARD, COMPLETE (AEP) **********	*	A-7073-027-A	IF-63 BOARD, COMPLETE (AEP) **********
P17	IC101	8-759-346-82	IC HD6473837H-A29	IC101	8-759-458-94	IC HD6473837H-D29
			ACCESSORIES & PACKING MATERIALS **********			ACCESSORIES & PACKING MATERIALS **********
	⚠	1-465-265-31	ADAPTOR, AC (AC-64NV) (US)	⚠	1-693-031-22	ADAPTOR, AC (AC-64NC) (US)
	⚠	1-465-267-21	ADAPTOR, AC (AC-64N(AE)) (AEP)	⚠	1-693-070-31	ADAPTOR, AC (AC-64NES) (AEP)
		1-574-316-11	CORD, CONNECTION (LANC CORD) (2.1m)		1-574-316-21	CORD, CONNECTION (LANC CORD) (2.1 m)
		3-800-105-11	MANUAL, INSTRUCTION (JAPANESE/ENGLISH/FRENCH/GERMAN)		3-859-186-11	MANUAL, INSTRUCTION (ENGLISH/FRENCH/GERMAN)
	*	3-942-531-01	CUSHION	*	3-942-531-02	CUSHION
	*	3-942-532-51	INDIVIDUAL CARTON	*	3-942-532-61	INDIVIDUAL CARTON

LANC INTERFACE BOX

MICROFILM

SONY®

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This machine (IF-FXE2) cannot be checked for its operation as a single machine.
Connect the peripheral machines and establish interface with them to check operation.

SPECIFICATIONS

REMOTE port	D SUB 9-pin (1)
LANC port	Stereo mini-mini jack (1)
Power requirements	6 V DC
Power consumption	3 W (max), using the supplied AC power adaptor
Operating temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Operational position	Horizontal or vertical
Dimensions	Approx. 106 × 40 × 163 mm (w/h/d) (4 1/4 × 1 5/8 × 6 1/2 inches) including projecting parts and controls
Mass	Approx. 500 g (1 lb 2 oz)
Supplied accessories	LANC/control cord (stereo mini-mini ⟷ stereo mini-mini) (1) AC power adaptor (1) List of LANC Compatible Products (1)
Optional accessories	RS-422 remote control cable RCC-5G/10G/30G (9-pin, 5 m/10 m/30 m)

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, par-ticularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replace-ment.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270°C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering

List of LANC Compatible Products

NTSC Model

Present '97.1

The IF-FXE2 LANC Interface Box allows a video product with a LANC port to be used in the video editing system. The IF-FXE2 is inserted between the RS-422 interface terminal of a business-use video editing control unit and the VCR or camcorder.

The following products can be used with this unit.
A model with the ◆ mark can be used as a Recorder for the FXE-120 or FXE-100UPG[1)].
A model with the O mark can be used as a Player for the PVE-500 or RM-450.
[1)] The optional special kit FXE-KIT1 is mounted to the FXE-100 and these units are called FXE-100UPG in this manual.

Note
This unit does not support VCRs with 4-place counters.

Betamax VCRs

Model	LANC connector type	Counter format	Notes
SL-HF1000	DIN 5-pin	Linear	Automatic counter switching not supported.
EDV-9000	DIN 5-pin	Linear	Automatic counter switching not supported.
SL-HF2100	DIN 5-pin	Linear	Automatic counter switching not supported.

VHS VCRs

Model	LANC connector type	Counter format	Notes
SLV-R5UC	DIN 5-pin	Linear	Set the LANC mode setting (M or S) on the VCR side to S.
SLV-R1000	Mini minijack	Linear	Set the LANC mode setting (M or S) on the VCR side to S.
SVO-160	DIN 5-pin	Linear	Professional VCR.
SVO-2000	DIN 5-pin	Linear	Professional VCR.

Digital VCRs

Model	LANC connector type	Counter format	Notes
O DCR-VX1000	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
O DCR-VX700	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
O DCR-PC7	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
O DSR-200	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
◆ O DSR-30	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.

8mm VCRs

Model	LANC connector type	Counter format	Notes
EV-S2000	Mini minijack	Linear	Set the LANC mode setting (M or S) on the VCR side to S.
EV-S3000	Mini minijack and DIN 5-pin	Linear	Set the LANC mode setting (M or S) on the VCR side to S.
◆ O EV-S7000	Mini minijack	Linear and time code	Set the LANC mode setting (M or S) on the VCR side to S.
◆ EV-S5000	Mini minijack	Linear and time code	Set the LANC mode setting (M or S) on the VCR side to S.
EVO-540 [1]	Mini minijack	Linear and time code	Readout of professional 8mm time code possible. [2]
CVD-500 [1]	Mini minijack	Linear and time code	Readout of professional 8mm time code possible. [2]
EVO-550H [1]	Mini minijack	Linear and time code	Readout of professional 8mm time code possible. [2]

1) Breakup may occur on the screen during editing operations. This is due to functional limitations of the VCR and does not affect the final edited video.

2) When using tapes with time code recorded in drop-frame mode, set PRESET 3 and 4 to ON and select DF mode.

8mm camcorders

Model	LANC connector type	Counter format	Notes
CCD-V801 [3]	Mini minijack	Linear and time code	Set the video and audio connectors on the VCR side to "output".
CCD-TR500 [3]	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
CCD-VX3	Mini minijack	Linear and time code	• Cassettes cannot be ejected from the VCR by control from this unit. • Set the video and audio connectors on the VCR side to "output".
CCD-TR3300	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
CCD-TR3000	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
CCD-TR910	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
CCD-TR700	Mini minijack	Linear and time code	

3) Breakup may occur on the screen during editing operations. This is due to functional limitations of the VCR and does not affect the final edited video.

List of LANC Compatible Products

PAL Model

Present '97.1

The IF-FXE2 LANC Interface Box allows a video product with a LANC port to be used in the video editing system. The IF-FXE2 is inserted between the RS-422 interface terminal of a business-use video editing control unit and the VCR or camcorder.

The following products can be used with this unit.
A model with the ◆ mark can be used as a Recorder for the FXE-120P or FXE-100UPG[1].
A model with the O mark can be used as a Player for the PVE-500 or RM-450.
[1] The optional special kit FXE-KIT1 is mounted to the FXE-100P and these units are called FXE-100UPG in this manual.

Note

This unit does not support VCRs with 4-place counters.

Digital VCRs

Model	LANC connector type	Counter format	Notes
O DCR-VX9000E	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
O DCR-VX1000E	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
O DCR-VX700E	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
O DCR-PC7E	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
◆ O DHR-1000	Mini minijack	Linear and time code	Set the LANC mode setting (M or S) on the VCR side to S.
O DSR-200P	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
◆ O DSR-30P	Mini minijack	Linear and time code	Set the LANC mode setting (M or S) on the VCR side to S.

8mm VCRs

Model	LANC connector type	Counter format	Notes
◆ O EV-S9000E	Mini minijack	Linear and time code	Set the LANC mode setting (M or S) on the VCR side to S.
◆ EV-C2000E	Mini minijack	Linear and time code	Set the LANC mode setting (M or S) on the VCR side to S.

8mm camcorders

Model	LANC connector type	Counter format	Notes
CCD-V6000E	Mini minijack	Time code	
CCD-V800E*	Mini minijack	Linear and time code	Set the video and audio connectors on the VCR side to "output".
CCD-TR3E*	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
CCD-VX1E	Mini minijack	Linear and time code	• Cassettes cannot be ejected from the VCR by control from this unit. • Set the video and audio connectors on the VCR side to "output".
CCD-TR2000E	Mini minijack	Linear and time code	
CCD-TR3000E	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
CCD-RV100E*	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
CCD-TRV91E/71E	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
CCD-TR760E/810E	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.
CCD-TR3300E /2200E	Mini minijack	Linear and time code	Cassettes cannot be ejected from the VCR by control from this unit.

* Breakup may occur on the screen during editing operations. This is due to functional limitations of the VCR and does not affect the final edited video.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Introduction

Overview of the IF-FXE2 LANC Interface Box

The IF-FXE2 LANC Interface Box allows a consumer video product with a LANC port to be used in the video editing system.
The IF-FXE2 is inserted between the RS-422 interface terminal of a business-use video editing control unit and the LANC port of the video product. This connection allows the editing control unit to control the video product and perform cut editing.

The following products can be used with this unit.

Editing control unit for business-use	Sony video editing system	FXE-100/100P[a]
	Sony video editing system	FXE-100UPG[b]
	Sony video editing system	FXE-120/120P
	Sony editing control unit	PVE-500[a]
	Sony editing control unit	RM-450[a]
Video product with a LANC port	Sony video products with LANC, CONTROL-L or REMOTE connector (specified consumer video products)	

a) Usable when the editing system is connected to a Player only.
b) **The optional special kit FXE-KIT1 is mounted to the FXE-100/100P and these units are called FXE-100UPG in this manual.** You can connect a Recorder to the FXE-100UPG.

See the separate "List of LANC Compatible Products" for further information.

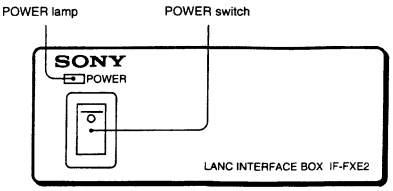
Note

- The editing with ±0 frame error may not be possible using a consumer video product, since it is not equipped with an external sync terminal and cannot perform the adjustment of the movement and position of the tape with that of the tape in the Recorder.

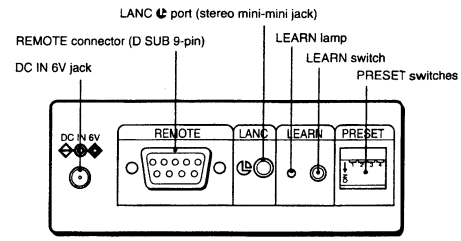
What is LANC?
LANC is an acronym for the Local Application Control bus system. It is a bi-directional wired command protocol designed by Sony to control video products. LANC is mainly used for consumer video products to connect a wired remote commander, to operate two video products with synchronization, etc. The LANC port is labeled as LANC, CONTROL-L or REMOTE, depending of the video product.

Parts Identification

Front view



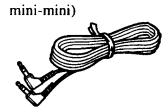
Rear view



Supplied accessories
The following accessories are packed with the IF-FXE2.

- AC power adaptor

- LANC /control cord (Stereo mini-mini ⟷ Stereo mini-mini)



- List of LANC Compatible Products

Connections and Preparations for Editing

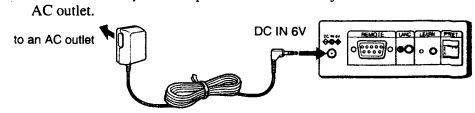
Follow steps 1 to 7.

1. **Connecting the IF-FXE2 and Other Equipment (page 7)**
2. **Setting the PRESET Switches (page 9)**
3. **Turning the Power on (page 10)**
4. **Setting the Video Product (page 11)**
5. **Setting the Editing Control Unit (page 12)**
6. **Detecting the VCR Properties Using the LEARN Switch on the IF-FXE2 (page 15)**
7. **Pressing the LEARN Button on the Editing Control Unit (page 17)**

1. Connecting the IF-FXE2 and Other Equipment

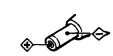
- Make sure that the POWER switches of the IF-FXE2, video product and editing control unit are turned off.

- **Connect the supplied AC power adaptor.**
  Connect the AC power adaptor to the DC IN 6V jack of the IF-FXE and to an AC outlet.

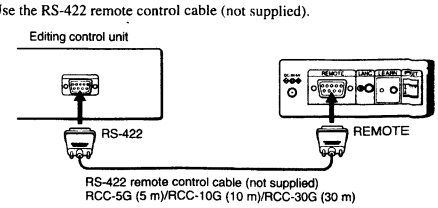


Notes

- Use only the supplied AC power adaptor manufactured by Sony. Polarity of the plugs of other manufacturers may be different.
- When the unit is not to be used, disconnect the AC power adaptor from the AC outlet.



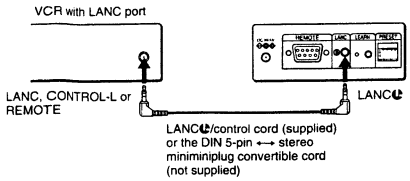
- **Connect the IF-FXE2 to the editing control unit.**
  Use the RS-422 remote control cable (not supplied).



Note

- The editing control units which are connected to the Recorder are FXE-100UPG and FXE-120/120P only.

- **Connect the IF-FXE2 to the VCR with LANC port.**
  Connect the LANC port of the IF-FXE2 to the LANC port of the VCR with the supplied LANC/control cord or the DIN 5-pin ⟷ stereo minimiplug convertible cord.


VCR with LANC port
LANC, CONTROL-L or REMOTE
LANC
LANC/control cord (supplied) or the DIN 5-pin ⟷ stereo minimiplug convertible cord (not supplied)

Note

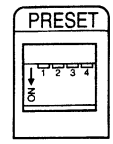
- Before connection, see the separate "List of LANC Compatible Products" and make sure it is the correct type of LANC port.
  When the LANC port of the VCR is of the DIN 5-pin type, use a cord (not supplied) to convert the DIN 5-pin to stereo minimiplug.

- **Connect the editing control unit to the VCR with LANC port.**
  Use the video/audio cable (not supplied).

Note

- When the LANC cord is connected, the power may be automatically turned on, depending of the VCR. This is caused by the specifications of the LANC protocol.

2. Setting the PRESET Switches



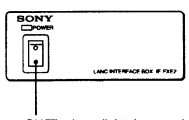
PRESET1	Set depending on the editing control unit. ON: when this unit is used to control a Player by connecting the RM-450/PVE-500. OFF: when this unit is used to control a Player/Recorder by connecting the FXE-100UPG/FXE-120/120P. * The new setting goes into effect when the power is turned off and on again.
PRESET2	Set to select a VCR which this unit controls, a Player or a Recorder. ON: when this unit is used to control the Recorder. OFF: when this unit is used to control the Player. * The new setting goes into effect when the power is turned off and on again.
PRESET3 (NTSC only)	Set the disposing mode of the drop frame. ON: depending on the setting of PRESET4 (manual mode). OFF: the setting of PRESET4 is ignored and the mode of the recorded tape is automatically discriminated (automatic mode). * The setting goes into effect after setting. * If the mode of the recorded tape is not automatically discriminated, refer to the separate "List of LANC Compatible Products."
PRESET4 (NTSC only)	Set the disposal of the drop frame. Set PRESET3 to ON to make this switch effective. ON: the disposing mode is set to the drop frame mode. OFF: the disposing mode is set to the non-drop frame mode. * Please read item "5. Setting the Editing Control Unit" before setting this switch.

Note

- The factory settings of PRESET switches are OFF.

3. Turning the Power on

When the connections are completed, turn on the power of each equipment. Last of all, set the POWER switch of the IF-FXE2 to ON.



ON(The lamp lights in green.)

If you turn this unit's power on while the VCR's powered is on, the counter mode is set automatically. It changes automatically to time code display mode if the VCR supports time code, and to linear mode if the VCR does not support time code. (However, this function is not supported by Betamax VCRs.) If a tape is loaded in the VCR, the VCR automatically enters "still" (playback paused) mode.

Note

- On certain VCRs, the counter select switch (or menu) may not be switched automatically. Check the status of your VCR with the separate "List of LANC Compatible Products."

4. Setting the Video Product

Before using the units, set the video product with LANC port as follows:

- **When using a camcorder with LANC port as a Player**
  POWER switch: "VIDEO" or "PLAY"
  Video/audio input/output selector: "OUTPUT" (if the selector is provided)

- **When using a VCR with LANC port as a Player**
  LANC mode (S/M) selector: "S"

Notes

- If the LANC mode is set to "M," the editing control unit cannot control the Player. Be sure to set the LANC mode to "S". In addition, some VCRs automatically reset the LANC mode to M when the power cord is disconnected from the AC outlet. Confirm the LANC mode after turning on the power of the VCR. For details, refer to the Instruction Manual of the VCR.
- The consumer video products equipped with the RC time code function cannot read the 8 mm time code for business products. Therefore, the editing control unit cannot control the connected consumer video product even if the 8 mm time code for business products is recorded on the tape being played back.
- The menu or other information displayed on the monitor screen will be recorded. Before editing, be sure to turn off the menu and on-screen display.
- Set the counter mode manually to linear mode (HMS) for Betamax VCRs.

5. Setting the Editing Control Unit

Set the editing control unit as follows:
You can connect a Recorder which is connected to Sony editing control unit FXE-100UPG or FXE-120/120P.

FXE-100/100P, FXE-100UPG or FXE-120/120P

After making the settings on the LANC VCR, turn this unit's power on and make the following setup menu settings.

Setting for a Player

Menu item	Setting
102 (112) REMOTE INTERFACE	Set P1 (player1) or P2 (player2) to RS422. When using the FXE-100/100P, set with the switch on the connector panel.
103 (104) EDIT REFERENCE	When using a VCR[a] that supports time code to play back a tape with recorded time code, set P1 or P2 to LTC+/VITC+. Otherwise, set to CTL.
104 (301) SYNC GRADE	Set to PREROLL & PLAY.
106 (102) RS422 PREROLL TIME (PREROLL TIME)	Set the preroll time to a value of 5 seconds or above.
108 (109) TC JUMP	Set to INHIBITED.
120/120P (113) MARK IN CTL AUTO RESET	If you have set P1 or P2 in item 103 (104) EDIT REFERENCE to CTL, you should normally set to ON.This function is not supplied with the FXE-100/100P.

a) To determine if your VCR supports time code, refer to the tables in "List of LANC Compatible Products". VCRs that support time code have the value "TIME CODE" in the "Counter format" column.

- The number or the menu item inside the parentheses shows the menu item when the FXE-100/100P/100UPG is used.

Setting for a Recorder

Menu item	Setting
102 (112) REMOTE INTERFACE	Set RECORDER to OTHERS.
103 (104) EDIT REFERENCE	Set to LTC+/VITC+.
104 (301) SYNC GRADE	PREROLL&PLAY is set automatically.
106 (102) RS422 PREROLL TIME (PREROLL TIME)	Set the preroll time to a value of 5 seconds or above.
107 (302) COLOR FRAMING	This setting is ignored.
108 (109) TC JUMP	INHIBITED is set automatically.
110 (110) FRAME CONTROL MODE	AUTO is set automatically.
115 (107) A-ROOL MODE SELECT	Set to PREVIEW MODE.
117 (105) USER BITS	This setting is ignored.
121 (114) REC TIMING OFFSET (OTHERS)	Adjust the duration of the insert editing. Set to the (-) side to make the duration short; the (+) side to make it long.

- The number or the menu item inside the parentheses shows the menu item when the FXE-100/100P/100UPG is used.

After setting

Confirm that the time code or "0" (when no tape is inserted) appears on the time counter of the editing control unit. Otherwise, the communication has failed. In this case, check and correct the settings.

Settings on the RM-450 (for Player only)

Set the slide switches, dip switches, etc. located in the center of the time counter display panel as follows:

Selector/switch	Setting
9/33 (9-pin/33-pin) selector	9-pin connector
PREROLL (Preroll time) selector	5 seconds or above
SYNCHRO selector	Do not perform the adjustment of the movement and position for the Player.
TC/RTC/CTL selector (for player)	When the Player has the linear time counter, set to CTL.
SYSTEM PRESET switch (Right number 6)	ON

Settings on the PVE-500 (for Player only)

Set the operation mode select switches and the setup menu items as follows:

Operation mode select switches	Setting
PREROLL (Preroll time) selector	5 seconds or above
SYNCHRO (Phase synchronization) selector	Do not perform the adjustment of the movement and position for the Player.
TC/RTC/CTL selector (P1/P2)	When the Player has the linear time counter, set the switch of the P1 or P2 to CTL.

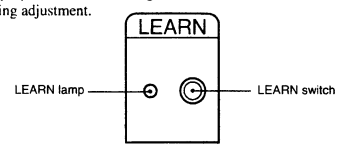
Menu item	Setting
Counter automatic reset SEtUP-02	ON
Start delay Recorder SEtUP-12 Player1 SEtUP-13 Player2 SEtUP-14	Set all connected VCRs to LEArn.
SYNCHRO of player1 SEtUP-16	When this unit is connected to the player1, set to OFF.
SYNCHRO of player2: SEtUP-17	When this unit is connected to the player2, set to OFF.

Notes

- For details, refer to the Operating Instructions for the editing control unit.
- When a **VCR other than one with the TBC function or a digital VCR** is connected for a Player and the tape is edited, **errors may occur, the recording may not be able to be made or editing precision may decline.** In this case, connect an external TBC unit or digital switcher, etc.

6. Detecting the VCR Properties Using the LEARN Switch on the IF-FXE2

The LEARN switch activates the connected VCR mechanism automatically and detects its properties. Before using the connected VCR for the first time, perform the following adjustment.



1 **Prepare a tape that meets the following conditions.**
   - Five minutes or more of video signals are recorded on the tape. (It does not matter if no audio signals are recorded.)
   - If the VCR supports time code, time code should always be recorded on the tape.
   - The tape is prepared for recording. (Make sure that the recording-prevent tab remains in place.)

2 **Set the tape in the VCR and cue it up to a point about 1 minute past the point where recording starts.**

3 **Press the LEARN switch on the unit.**
   The LEARN lamp begins to flash and the LEARN function is executed. This unit checks the mechanical characteristics of the VCR by causing it to execute playback, pause, fast forward and other operations. (The operations differ according to the VCR.)

4 **Confirm that the LEARN lamp lights.**
   Normally, the unit completes the LEARN function in two or three minutes and stores the learned data in the memory. Confirm that the flashing of the LEARN lamp changes to solid light when the LEARN function is executed.

Notes

- When the LEARN function is correctly executed, the unit retains the data stored in memory even if the power is turned off. You do not need to execute the LEARN function again unless you change the connections.
- The time code display on the editing control unit is turned off during execution of the LEARN function. Make sure that the LEARN lamp is lit when the time code which had disappeared from the display window of the editing control unit reappears. If not, perform step 6 again.

Points to observe about the LEARN function

- For Betamax VCRs, always check to be sure that the VCR's counter mode is set to linear mode before executing the LEARN function. If it is set to remaining time display, manually change it to linear mode.
- Never operate the VCR while the LEARN function is being executed. Doing so can cause errors and result in inaccurate measurements.
- **(NTSC only) For the LEARN function, never use a tape that has been recorded with the drop frame and non-drop frame modes mixed.** This may cause an error in editing or affect editing precision.
- Whenever possible, use a tape recorded by the VCR you are testing. Do not use tapes such as the following, or other tapes with problematic recording conditions.
  - Tapes on which the recording mode changes (LP-SP, BI-BII-BIII, etc.) midway through the tape
  - Tapes on which the recording is not continuous
  - Tapes on which the video synchronization signals are unstable
  - Tapes with frequent dropouts
  - When testing a VCR that supports time code, tapes without continuous time code or tapes with time code recorded on only part of the tape
- If time code cannot be read because of poor recording conditions on the tape, the LEARN lamp may go off before the measurements finish. If this happens, execute the LEARN function again.
- **VCRs which are automatically powered off during execution of the LEARN function cannot be connected for use with this unit.**
- If no measurement data on the characteristics of a VCR is stored in memory after execution of the LEARN function, the functions which you can execute on that VCR by using the search dial of this unit are limited to playback, playback pause, and picture search.
- Even after execution of the LEARN function, a VCR connected to this unit over the LANC interface will not deliver the same degree of editing precision and responsiveness as a VCR connected over the RS-422 or RSV-232C interface. Depending on the type of LANC VCR, the LEARN function may fail to detect some of the variable playback speeds provided by operations on the VCR's main unit or remote control unit. In this case, you cannot use this unit's search dial to execute jog and shuttle operations on that VCR.
- When you use a DV unit as the Recorder, take special care to assure the compatibility of the DVCAM and DV formats and that of dubbing before executing the LEARN function. If the LEARN function is executed incorrectly, an error may occur during editing or insert editing will not be possible.
- When another VCR is connected or the Player and the Recorder are switched, turn off the power of the IF-FXE2 (the LEARN lamp is turned off), and perform steps "2. Setting the PRESET Switches" to "7. Pressing the LEARN Button on the Editing Control Unit."

7. Pressing the LEARN Button on the Editing Control Unit

If the editing control unit is equipped with the LEARN button, press it.
When you press the LEARN button, the editing control unit automatically counts the time from the moment when the VCR receives the tape transport command to that when the tape actually starts running, and stores the data in the memory.

Time Code and Time Counter

When you connect a Recorder or Player to this unit, note the following.

About professional 8mm time code

Consumer VCRs designed for RC time code cannot read out professional 8mm time code. Therefore, this unit cannot control such a consumer VCR when a tape containing professional 8mm time code is loaded in it.

About VCR counter modes

This unit supports two VCR counter modes: linear mode and time code display mode. It does not support operation under other counter modes. If you have changed the counter mode to display the time remaining on the tape, be sure to change the mode manually back to the original counter mode.
To enable automatic counter mode switching, the power of both this unit and the VCR must be on. (Note that Betamax VCRs do not support automatic counter mode switching.)

Editing in linear time counter mode

Set the time counter display of the editing control unit to CTL.
When you edit in linear time counter mode, frame information is disregarded. If you input edit point data with a value other than 00 in the frames field, editing precision may decline and errors may occur during cue up, automatic edit, and preview operations. To set an IN point, run the tape and position the blank portion 15 seconds or more before the IN point. If the editing control unit is supplied with a function which automatically resets the counter at the IN point, set it to ON and press the MARK IN button. When you press the button, the IN point will be set to 00:00:00:00.
After setting the IN point, avoid running the tape. Editing precision may decline if you run the tape before executing the edit. You should be especially careful about using the search dial to run the tape repeatedly in the forward and reverse directions. Doing so can result in large discrepancies between the counter value and the tape position.

Notes on Editing with the Recorder Connected to the IF-FXE2

These are notes for when the unit is connected to the Recorder.

Limitations for Editing

- **Time code insert and time code presetting are not possible.**
  You cannot insert the time code onto a tape only recorded in video/audio format or preset a specified time code on the Recorder.
- **Split editing is not possible.**
  You cannot shift the video IN point and the audio IN point.
- **Edit mode selection is not possible during insert editing.**
  You cannot change video/audio recording tracks during insert editing.
- **Manual preview mode is automatically selected.**
  For preview operation (rehearsal before editing), the manual mode (or no Recorder connection) is fixed. The Recorder does not operate during previewing.
- **The IN point accuracy depends on the connected VCR.**
  Due to the limitations of the LANC interface and the connected VCR, the recording starts from REC PAUSE mode. For this reason, the IN point accuracy depends on the connected VCR.
- **The OUT point accuracy of the Recorder cannot be calculated automatically with the LEARN function.**
- **For fast editing, set the IN point to "00:00:10:00."**
  Be sure to set to the time code above since you cannot use the time code presetting function when the Recorder is connected to this unit. Setting another value will cause an error.
- **User's bits cannot be used.**
  The time code data format allocates 32 bits as user's bits in which you can record desired information. You cannot use the user's bits with this unit.

Selecting the Edit Mode

Select the assemble editing mode and insert editing mode. With this unit, the editing mode selection for the audio track is different from other video products for business use. See the following table for each format.

Edit mode / Format	ASM	V	A1	A2	A1, A2
8mm	○	×	×	○ (PCM)	×
DV/DVCAM 16 Bits AUDIO (Fs48k)	○	○	×	×	○ (STEREO1)
DV/DVCAM 12 Bits AUDIO (Fs32k)	○	○	○ (STEREO1)	○ (STEREO2)	○ (STEREO1,2)

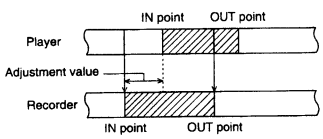
Notes

- When the editing mode is not appropreate, the editing may not be performed because the error occurs for the limitations of the VCR.
- When the audio signal is dubbed on the PCM track by using the 8mm VCR, select A2.
- Select A1/A2 for 16 Bits Audio insert by using the VCR of DV/DVCAM format.
- When the signal of the 12 Bits Audio format is inserted on the tape recorded in 16 Bits Audio format, or vice versa, the audio signal is interrupted.
- **When performing audio insert editing on a tape recorded with the DV format, there are multiple patterns to be recorded on the tracks. Before performing the audio insert editing, check your pattern with the Operating Instructions of the VCR.**
- This unit cannot function for the L/R independent editing mode.

3 Set the setup menu item 303 (403) from BYTE 01 to BYTE 10, and calculate the adjustment value.

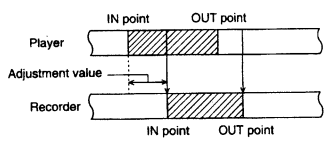
How to calculate the adjustment value

If the actual IN point shifts forward to the IN point preset on the Player



08 (default setting) - number of frames obtained in step **2**
Example: To adjust 5 frames
08 - 05 = 03

If the actual IN point shifts backward to the IN point preset on the Player



08 (default setting) + number of frames obtained in step **2**
Example: To adjust 5 frames
08 + 05 = 0C
Adjustment value is calculated in hexadecimal.

4 Perform a trial editing and confirm the adjustment result.
Repeat steps **3** and **4** until best possible result is obtained.

Adjusting the Edit Timing

If the actual edited point does not accurately coincide with the preset editing point, perform the fine adjustment of the edit timing using the setup menu of the editing control unit. This improves the editing accuracy.
There are two adjustment methods.

- Adjusting the IN point
- Adjusting the duration between the IN and OUT points of insert editing

Notes

- Due to the LANC interface quality and adaptation to multifunctions, this unit does not guarantee the editing accuracy to as great a level as a VCR controlled by the RS-422/RS-232C interface for business use. However, you can adjust this unit and the VCR for best editing accuracy.
- We recommend that you perform the trial editing when the Recorder is used.

Adjusting the IN point

1 Display the item "303 DEVICE TYPE RECORDER (or 403 DEVICE TYPE RECORDER)*" in the setup menu of the editing control unit, and set it from DISABLE to ENABLE.

2 Repeat editing several times and check the shift of the editing point; that is, count the number of frames to be adjusted.

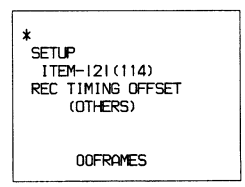
Note

- The editing result may differ between DISABLE and ENABLE settings of setup menu item 303 (403). Be sure to check the editing result after changing the setting to ENABLE.

Adjusting the duration between the IN and OUT points of insert editing

1 Repeat editing several times and check the shift of the duration; that is, count the number of frames to be adjusted.

2 Display the item "121 REC TIMING OFFSET (or 114 REC TIMING OFFSET)" in the setup menu of the editing control unit.



Selectable settings

*00FRAMES	Timing is adjusted frame by frame.
-20 to 20 FRAMES	Timing is not adjusted.

How to calculate the adjustment value

To shorten the duration
00FRAMES - number of frames obtained in step **1**
Example: To adjust 5 frames
00 - 05 = -5 frames

To prolonge the duration
00FRAMES + number of frames obtained in step **1**

3 Perform a trial editing and confirm the adjustment result.
Repeat steps **2** and **3** until best possible result is obtained.

Notes

- The range of the adjustment value is -20 to 20 frames.
- The number inside the parentheses shows the menu item when the FXE100UPG is used.

Troubleshooting Guide

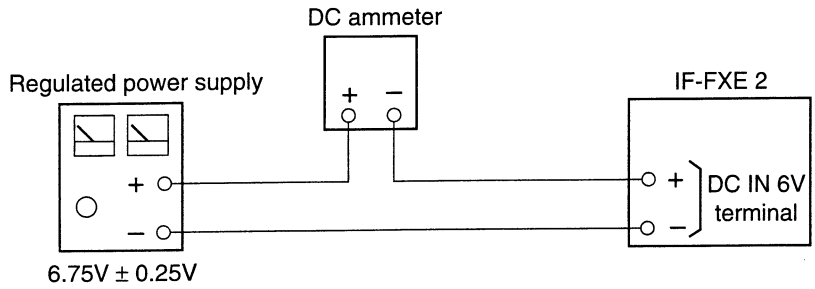
Check the table below before consulting your Sony dealer.

Symptom	Check point/remedy
The connected VCR cannot be controlled.	• Is the VCR turned on? • Are the IF-FXE2, VCR and editing control unit connected correctly? • When the camcorder is used, is the input/output selector set to "OUTPUT"? • When the VCR is used, is the LANC mode selector set to "S"? Some VCRs reset the LANC mode to "M" when the power cord is disconnected. • Do you have pressed the LEARN switch? • Is the counter selector (or menu) on the VCR set to "TIME CODE"? • Is the time code recorded on the tape being played back? • Was the playback pause held for more than 5 minutes? When the playback pause is held for about 5 minutes, the camcorder with LANC port is automatically set to stop mode; the VCR with LANC port automatically resumes playback.
The adjustment using the LEARN switch does not improve the editing accuracy.	• Was another VCR connected after the adjustment? Perform the adjustment each time you change the VCR. • Is the counter selector (or menu) on the VCR set to "TIME CODE"? • (NTSC only) Did you use a tape with recordings in drop frame mode and non-drop frame mode mixed for the LEARN function? (Execute the LEARN function again using a tape recorded in one or the other mode only.)
The VCR turns off when you press the LEARN switch to execute the LEARN function.	• Is the connected VCR included in "List of LANC Compatible Products?" If it is, the VCR may be damaged. Consult your Sony dealer.
The tape is ejected when you execute the LEARN function with the Recorder connected.	• Is the recording prevent tab set for recording?
The Recorder cannot be controlled, or communication has failed.	• Is the editing control unit FXE-100UPG or FXE-120/120P connected? • Did you turn on this unit before setting the PRESET2 switch to ON? (Turn on the unit after setting the PRESET2 switch to ON.) • Is the LANC mode on the VCR set to "S?"

Symptom	Check point/remedy
• When you connect a DV unit to the Recorder and execute the LEARN function, the "YOU CANNOT INSERT" error message appears. Then the LEARN function finishes and the LEARN lamp lights. • Insert mode V, A1 or A2 cannot be selected on the editing control unit.	• Is the line input selected on the VCR? (If TV or DVIN input has been selected, select the line input and execute the LEARN function again.)
• Insert mode V, A1 or A2 cannot be selected on the editing control unit when you connect a DV unit to the Recorder and perform editing. • An error occurs when you connect a DV unit to the Recorder and perform insert editing.	• Is a copy guard set on the DV tape? • Did you use a tape recorded with a DV unit for consumer use to re-record with a DV unit (DVCAM) for business use? (There are two formats for the DV tapes: DVCAM and DV. Check the compatibility of the two formats with the Operating Instructions of the VCR, since there are limitations on use.)

SECTION 2
ADJUSTMENTS

1. **Preparations before adjustment**
2. **Required equipment**
   - Regulated power supply
   - Digital voltmeter
   - DC ammeter (0 to 200 mA)
3. **Equipment connection**



4. **Power supply voltage and current consumption check**

Measurement Point	Power supply voltage check (IF-63 board) • Between IC105 pin-① (CL113) and IC105 pin-② (CL103) GND. • Between IC106 pin-① (CL112) and IC106 pin-② (CL102) GND. Current consumption check (DC IN 6V terminal) (See note.) • Refer to the equipment connection diagram.
Specification Value	Power supply voltage = 5.00 ± 0.25V Current consumption = 100mA or less

Check procedure:

Order	
1	Apply 6.75V ± 0.25V to the DC IN 6V terminal of the IF-FXE2 from the regulated power supply.
2	Confirm that the IC105 output and the IC106 output (5V REG) satisfy the specification value.
3	Confirm that the current consumption satisfies the specification value. (See Note.)

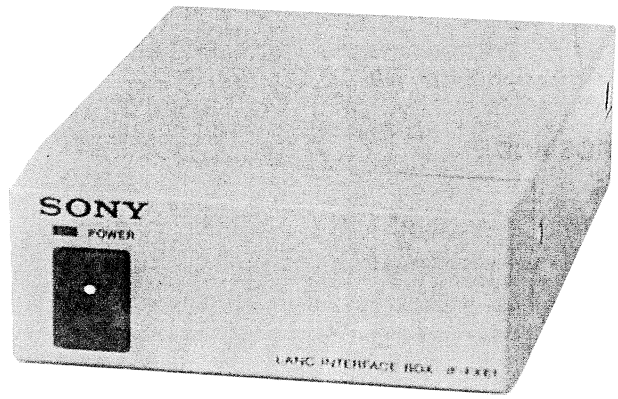
Note: The POWER LED (DS-72 board D101) lights when the main power switch is turned ON.

IF-FXE1

SERVICE MANUAL

US Model

AEP Model



SPECIFICATIONS

REMOTE port	D SUB 9-pin (1)
LANC port	Stereo mini-mini jack (1)
Power requirements	6 V DC
Power consumption	3 W (max), using the supplied AC power adaptor
Operating temperature	5 ° C to 40 ° C (41 ° F to 104 ° F)
Storage temperature	-20 ° C to 60 ° C (-4 ° F to 140 ° F)
Operational position	Horizontal or vertical
Dimensions	Approx. 106 × 40 × 163 mm (w/h/d) (4 1/4 × 1 5/8 × 6 1/2 inches) including projecting parts and controls
Mass	Approx. 500 g (1 lb 2 oz)
Supplied accessories	LANC/control cord (stereo mini-mini ⟷ stereo mini-mini) (1) AC power adaptor (1) List of Compatible Products (1)
Optional accessories	RS-422 remote control cable RCC-5G/10G/30G (9-pin, 5 m/10 m/30 m)

Design and specifications are subject to change without notice.

MICROFILM

LANC INTERFACE BOX

SONY®

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IF-63(INTERFACE), DS-72(LED)
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This machine (IF-FXE1) cannot be checked for its operation as a single machine.
Connect the peripheral machines and establish interface with them to check operation.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and brides.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, throught functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replace-ment.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270°C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

List of Compatible Products

NOTE) This is the list as of May, 1995.

Products to be connected to REMOTE connector

Model name	Remarks
FXE-100 (NTSC) FXE-100P (PAL)	Set the PLAYER RS-422/RS-232C selector to "RS-422 ".

Products to be connected to LANC port

Model name	PRESET switches ① ② ③ ④	Remarks
EV-S7000 (NTSC) EV-S9000E (PAL)	All OFF	Set the LANC M/S selector to "S".
CCD-VX3 (NTSC)	All OFF	Set the audio/video input/output selector to "OUT PUT". The cassette cannot be ejected from the editing control unit.
CCD-TR700 (NTSC) CCD-TR2000E (PAL)	All OFF	—
EV-C2000E	All OFF	—
CCD-VX1E	All OFF	The cassette cannot be ejected from the editing control unit.

Products with limitations

On the following products, the picture is significantly distorted during editing operation, due to the limitation of the functions of each product. However, this does not affect the edited picture.

Model name	PRESET switches ① ② ③ ④	Remarks
EVO-550H (NTSC)	All OFF	The 8 mm time code for business products can be read.
EVO-540 (NTSC)	All OFF	The 8 mm time code for business products can be read.
CVD-500 (NTSC)	All OFF	The 8 mm time code for business products can be read.
CCD-V801 (NTSC)	All OFF	Set the audio/video input/output selector to "OUT PUT".
CCD-TR500 (NTSC) CCD-TR3E (PAL)	① ON ②③④ OFF	The cassette cannot be ejected from the editing control unit.
CCD-V6000E (PAL)	① ON	Set the counter mode to the RC time code.
CCD-V800E (PAL)	All OFF	—

Usable tapes

Use the tapes recorded in SP mode only. Use of LP-recorded tapes is not guaranteed.

This section is extracted from instruction manual.

English

Owner's Record

The model and serial numbers are located on the bottom of the unit.
Record the serial number in the space provided below.
Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. IF-FXE1 Serial No. _____

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

Warning — This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications.
It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause inteference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Important — To insure that the complete system (including this peripheral) is capable of complying with the FCC requirements, it is recommended that the user make sure that the individual equipment of the complete system has a label with one of the following statements.

"This equipment has been tested with a Class A Computing Device and has been found to comply with Part 15 of FCC Rules."

- or -

"This equipment complies with the requirements in Part 15 of FCC Rules for a Class A Computing Device."

- or equivalent.

Introduction

Overview of the IF-FXE1 LANC Interface Box

The IF-FXE1 LANC Interface Box allows a consumer video product with a LANC port to be used as a Player in the video editing system.
The IF-FXE1 is inserted between the RS-422 interface terminal of a business-use video editing control unit and the LANC port of the video product. This connection allows the editing control unit to control the video product and perform cut editing.

The following products can be used with this unit.

Editing control unit for business use	Sony FXE-100/100P video editing system, etc.
Video product with a LANC port	Sony video products with LANC, CONTROL-L or REMOTE connector (specified consumer video products)

- See the separate "List of Compatible Products" for further information.

Notes

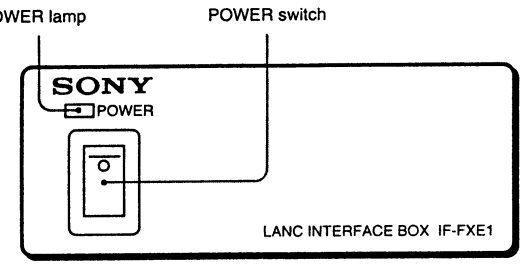
- You cannot use the video product with LANC port as a Recorder.
- The editing with ±0 frame error is not possible using a consumer video product, since it is not equipped with an external sync terminal and cannot perform the adjustment of the movement and position of the tape with that of the tape in the Recorder.

What is LANC?

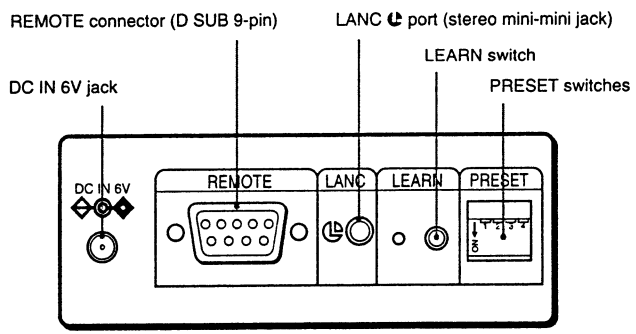
LANC is an acronym for the Local Application Control bus system. It is a bi-directional wired command protocol designed by Sony to control video products. LANC is mainly used for consumer video products to connect a wired remote commander, to operate two video products with synchronization, etc. The LANC port is labeled as LANC, CONTROL-L or REMOTE, depending of the video product.

Parts Identification

Front view



Rear view

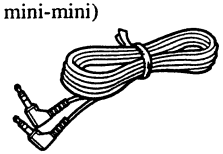


Supplied accessories

The following accessories are packed with the IF-FXE1.

- AC power adaptor

- LANC /control cord (Stereo mini-mini ⟷ Stereo mini-mini)



- List of Compatible Products

Connections and Preparations for Editing

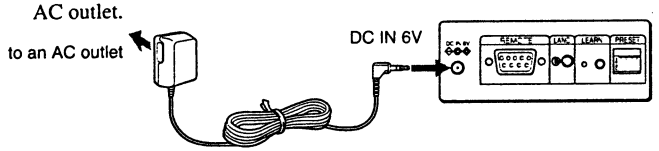
Follow steps 1 to 7.

1. **Connecting the IF-FXE1 and Other Equipment (page 20)**
2. **Turning the Power on (page 21)**
3. **Setting the Video Product (page 22)**
4. **Setting the Editing Control Unit (page 22)**
5. **Setting the PRESET Switches (page 23)**
6. **Detecting the VCR Properties Using the LEARN Switch on the IF-FXE1 (page 23)**
7. **Pressing the LEARN Button on the Editing Control Unit (page 24)**

1. Connecting the IF-FXE1 and Other Equipment

•Make sure that the POWER switch of the IF-FXE1 is turned off.

- **Connect the supplied AC power adaptor.**
  Connect the AC power adaptor to the DC IN 6V jack of the IF-FXE1 and to an AC outlet.

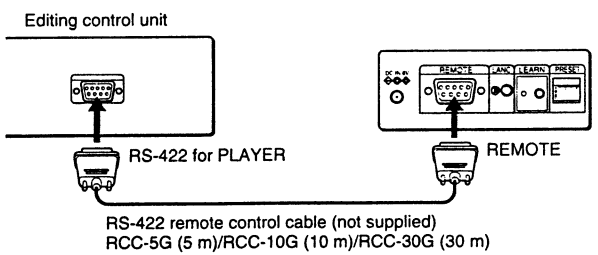


Notes

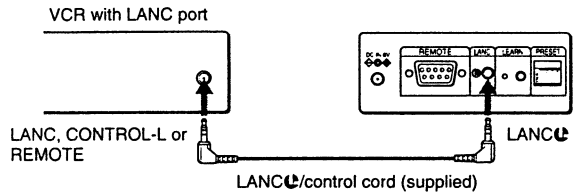
- Use only the supplied AC power adaptor manufactured by Sony. Polarity of the plugs of other manufacturers may be different.
- When the unit is not to be used, disconnect the AC power adaptor from the AC outlet.

Polarity of the plug

- **Connect the IF-FXE1 to the editing control unit.**
  Use the RS-422 remote control cable (not supplied).



- **Connect the IF-FXE1 to the VCR with LANC port.**
  Use the LANC/control cord (supplied).

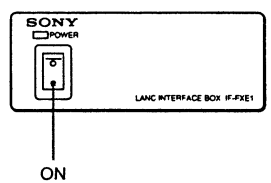


- **Connect the editing control unit to the VCR with LANC port.**
  Use the audio/video cable (not supplied).

In addition, connect the Recorder and monitor to the editing control unit.

2. Turning the Power on

When the connections are completed, turn on the power of each equipment. Last of all, set the POWER switch of the IF-FXE1 to ON.



When the power of the IF-FXE1 is turned on, the counter select switch (or menu) on the connected VCR with LANC port is automatically set to "TIME CODE."

Note

On certain VCRs, the counter select switch (or menu) may not be switched automatically. Check the status of your VCR with the separate "List of Compatible Products."

3. Setting the Video Product

Before using the units, set the video product with LANC port as follows:

- **When using a camcorder with LANC port as a Player**
  POWER switch: "VIDEO" or "PLAY"
  Audio/video input/output selector: "OUTPUT" (if the selector is provided)

- **When using a VCR with LANC port as a Player**
  LANC mode (S/M) selector: "S"

Notes

- If the LANC mode is set to "M," the editing control unit cannot control the Player. Be sure to set the LANC mode to "S". In addition, some VCRs automatically reset the LANC mode to M when the power cord is disconnected from the AC outlet. Confirm the LANC mode after turning on the power of the VCR. For details, refer to the Instruction Manual of the VCR.
- The consumer video products equipped with the RC time code function cannot read the 8 mm time code for business products. Therefore, the editing control unit cannot control the connected consumer video product even if the 8 mm time code for business products is recorded on the tape being played back.
- The menu or other information displayed on the monitor screen will be recorded. Before editing, be sure to turn off the menu and on-screen display.

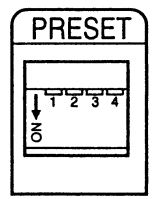
4. Setting the Editing Control Unit

Set the editing control unit as follows:

- Edit reference (LTC/CTL selector) for the RS-422 port to which the IF-FXE1 is connected: "LTC"
- Phase synchronization accuracy (SYNC GRADE): "PREROLL & PLAY"
- Pre-roll time: Normally 5 seconds

5. Setting the PRESET Switches

The PRESET switches select the VCR format and the time code used in the VCR. The PRESET switches are set at the factory for an 8 mm VCR/8 mm camcorder with the RC time code function.
If you use a VCR of another format or time code, change the setting of the PRESET switches. Refer to the separate "List of Compatible Products."

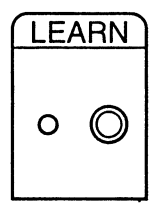


Note

When setting the PRESET switches, turn off the power of the IF-FXE1. The new setting goes into effect when the power is turned on again.

6. Detecting the VCR Properties Using the LEARN Switch on the IF-FXE1

The LEARN switch activates the connected VCR mechanism automatically and detects its properties. Before using the connected VCR for the first time, perform the following adjustment.



1 Insert a tape with the RC time code recorded into the VCR and set it to stop mode.

2 Press the LEARN switch.
The LEARN lamp flashes and a beep sounds on the editing control unit. The VCR automatically operates in playback, pause, frame-by-frame playback modes, etc. (The operating modes differ depending on the VCR.) While the VCR is in operation, the IF-FXE1 detects the properties of the VCR mechanism and stores the data in memory. After the data storage is completed, the LEARN lamp lights.
The memory is retained even if the power of the IF-FXE1 is turned off.

When another VCR is connected

Each time you connect another VCR, turn off the power of the IF-FXE1 (the LEARN lamp is turned off), and perform steps "2. Turning the Power on" to "7. Pressing the LEARN Button on the Editing Control Unit."

Notes

- Even if you connect a VCR equipped with the RC time code function and perform the adjustment using the LEARN switch, the editing accuracy and response speed using the IF-FXE1 is lower than those obtained when you connect a business-use VCR directly to an editing control unit via a 9-pin remote connector control cable.
- If you do not perform step 6, the JOG dial/SHUTTLE ring on the editing control unit may not work correctly.
- If the IF-FXE1 cannot read the time code from the VCR due to poor recording quality, the LEARN lamp may go out. Make sure that the LEARN lamp is lit when the time code once disappeared from the display window of the editing control unit reappears. If not, perform step 6 again.

7. Pressing the LEARN Button on the Editing Control Unit

If the editing control unit is equipped with the LEARN button, press it.
When you press the LEARN button, the editing control unit automatically counts the time from the moment when the VCR receives the tape transport command to that when the tape actually starts running, and stores the data in the memory.

Glossary

Camcorder

Video equipment that is both a video camera and a video cassette recorder.

8 mm time code for business products

Usually the synonym of time code. In this manual, we use 8 mm time code to mean the time code used for broadcast or business-use video products, where the distinction from the RC time code is necessary.

LANC

An acronym for Local Application Control bus system. A bi-directional wired command protocol designed by Sony to control video equipment. Because it is bi-directional, it can be used to send commands from the computer or editing control unit to video equipment as well as return status information and messages from the video equipment to the computer or editing control unit.

Phase synchronization

The adjustment of the movement and position in recording and playback tapes to maintain editing precision in editing with two or more VCRs.

RC time code

An acronym for the Rewritable Consumer time code. A time code mainly used for consumer video products such as video cassette recorder or camcorder. The specifications of the RC time code differ from those of the 8 mm time code used for broadcast or business-use video products. There are no compatibility between the two time codes.

RS-422

A bi-directional serial interface used for broadcast-use VCRs as standard. This interface allows sending commands and reading status information and messages. Sony broadcast-use video products are equipped with a D-SUB 9-pin RS-422 connector.

Stereo mini-mini plug

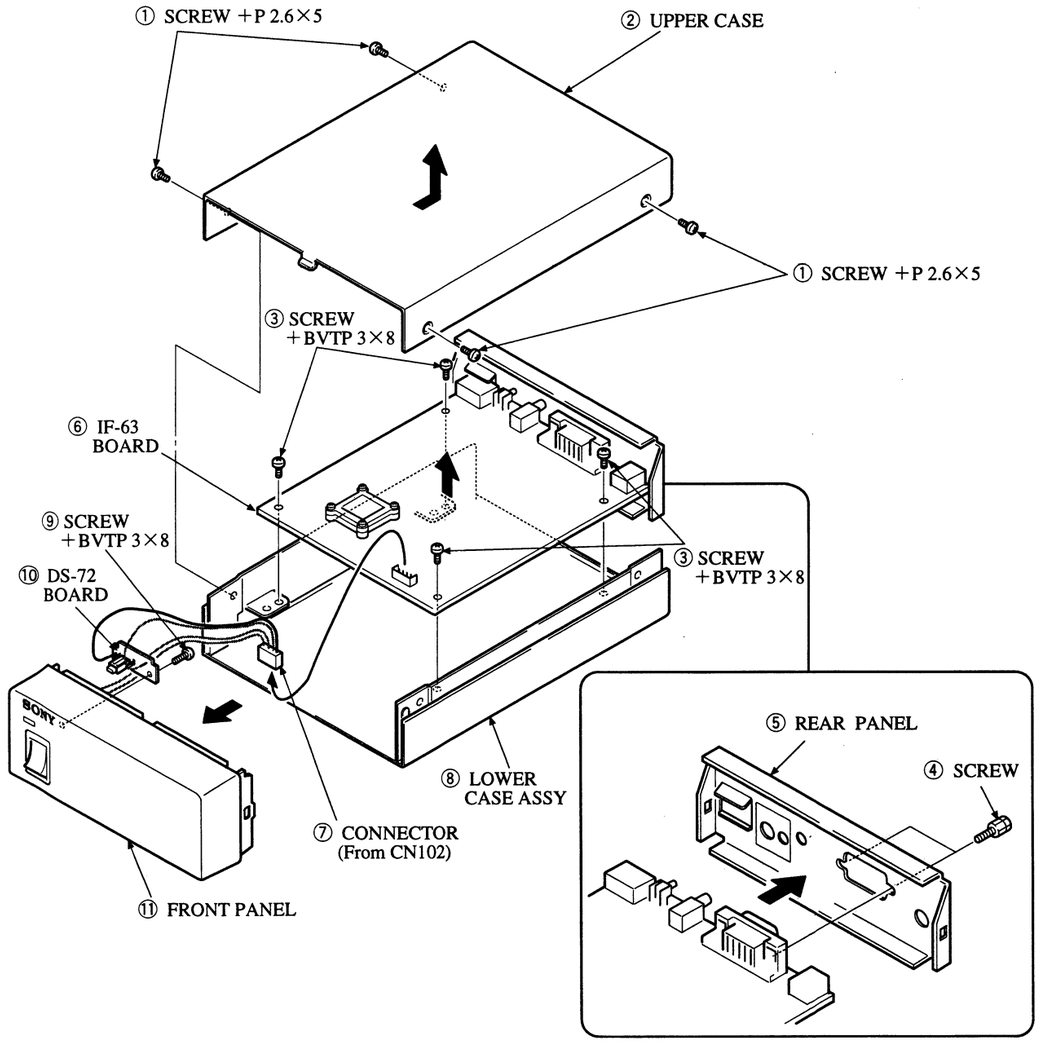
A connector used in earphones, microphones, etc.

Time code

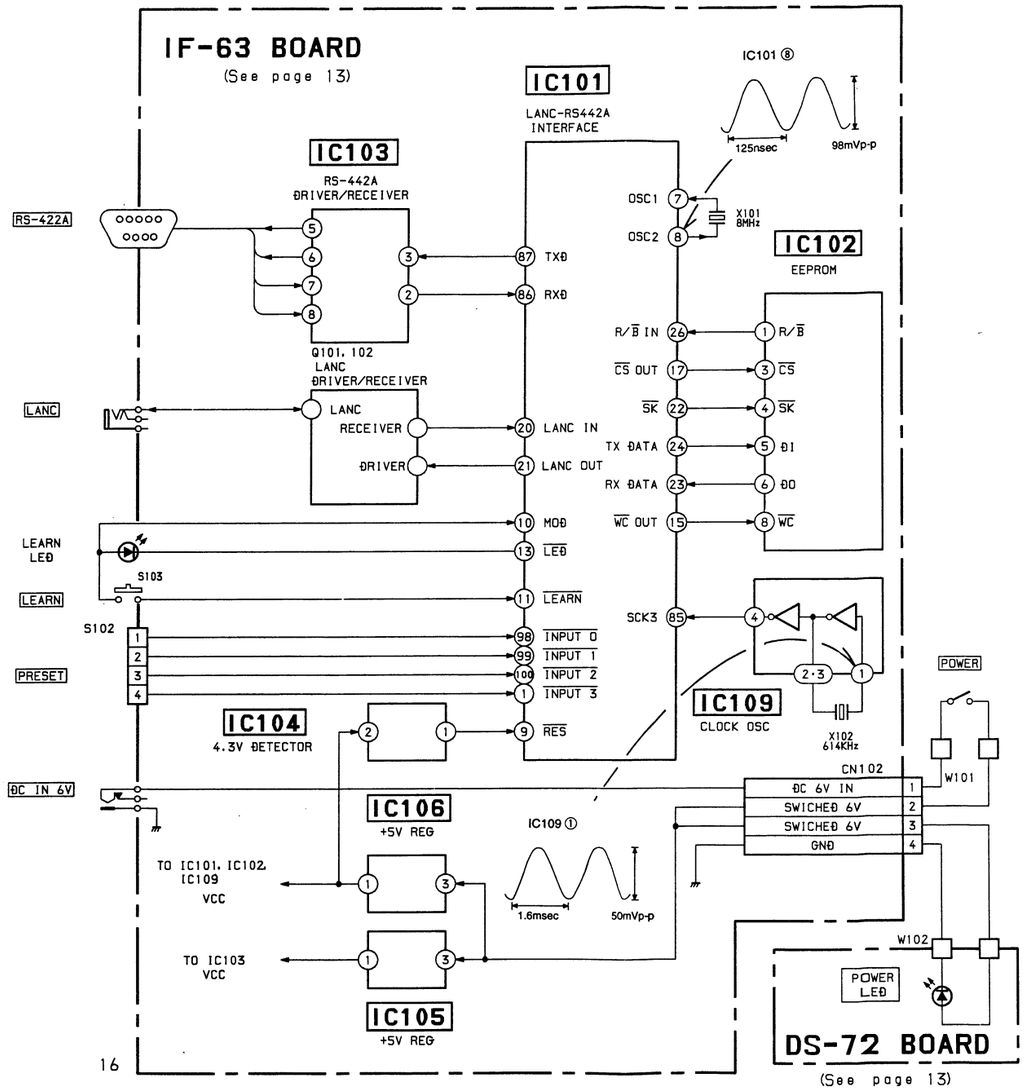
Time data (hours, minutes, seconds and frames) recorded on a tape that indicate the absolute location of the tape to easily set editing points, search for a certain scene, etc. All the data for the editing points are based on the time code.

SECTION 2
DISASSEMBLY

NOTE : Follow the disassembly procedure in the numerical order given.



SECTION 3
BLOCK DIAGRAM



SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For printed wiring boards:

- ○ : Through hole is omitted.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.*

For schematic diagram:

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4 W unless otherwise noted.
  Chip resistors: 1/10 W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- : panel designation.
- : B+Line.*
- : B-Line.*
- : IN/OUT direction of B line (+, -).*
- Voltage are dc between ground and measurement points.*
- Readings are taken with a digital multimeter (DC10 MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

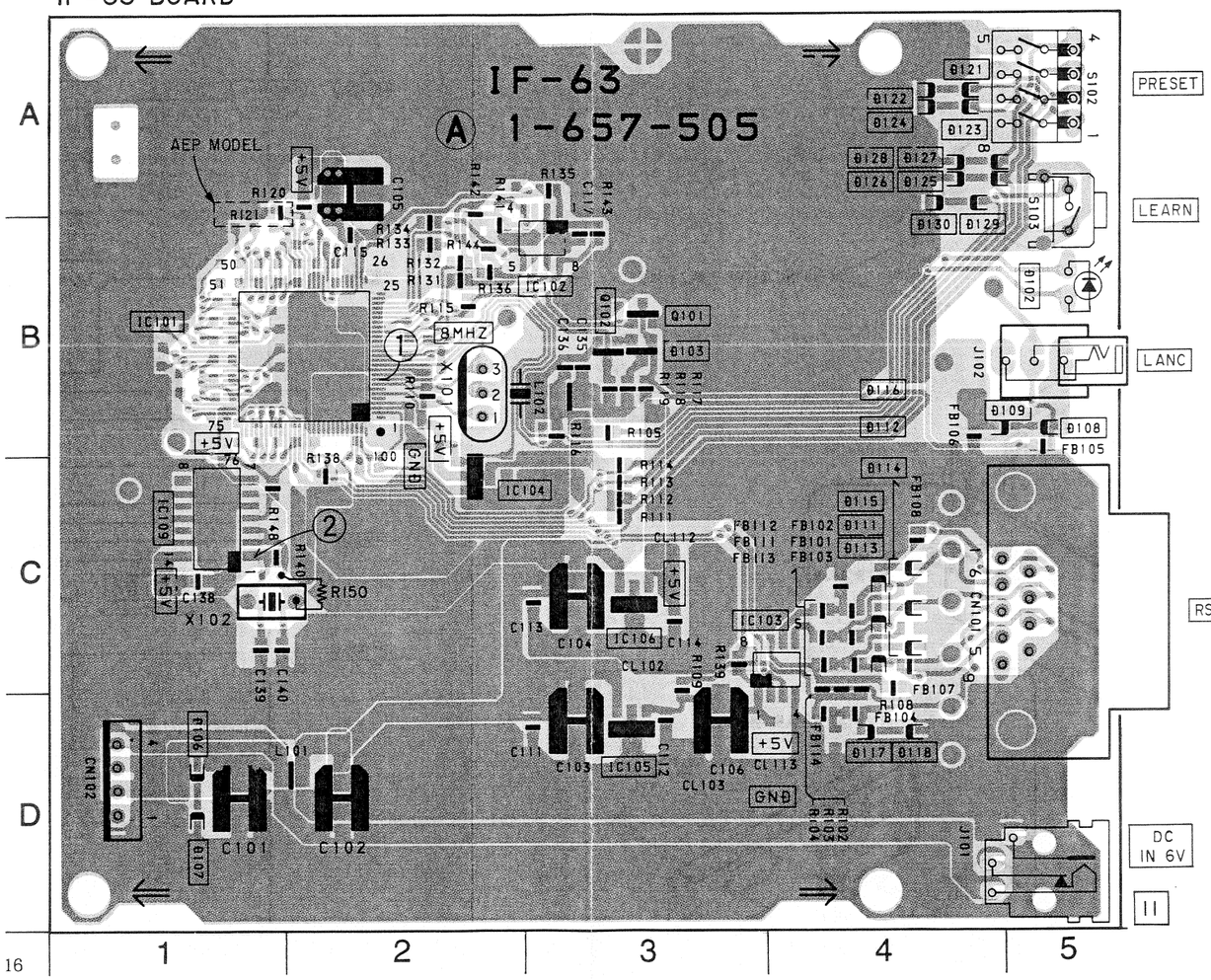
When indicating parts by reference number, please include the board name.

- *: indicated by the color red.

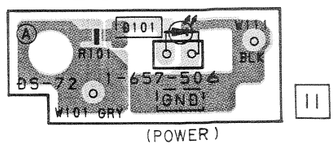
IF-63 (INTERFACE), DS-72 (LED) PRINTED WIRING BOARD

— Ref. No. IF-63 Board; 2,000 Series, DS-72 Board; 1,000 Series —

IF-63 BOARD



DS-72 BOARD

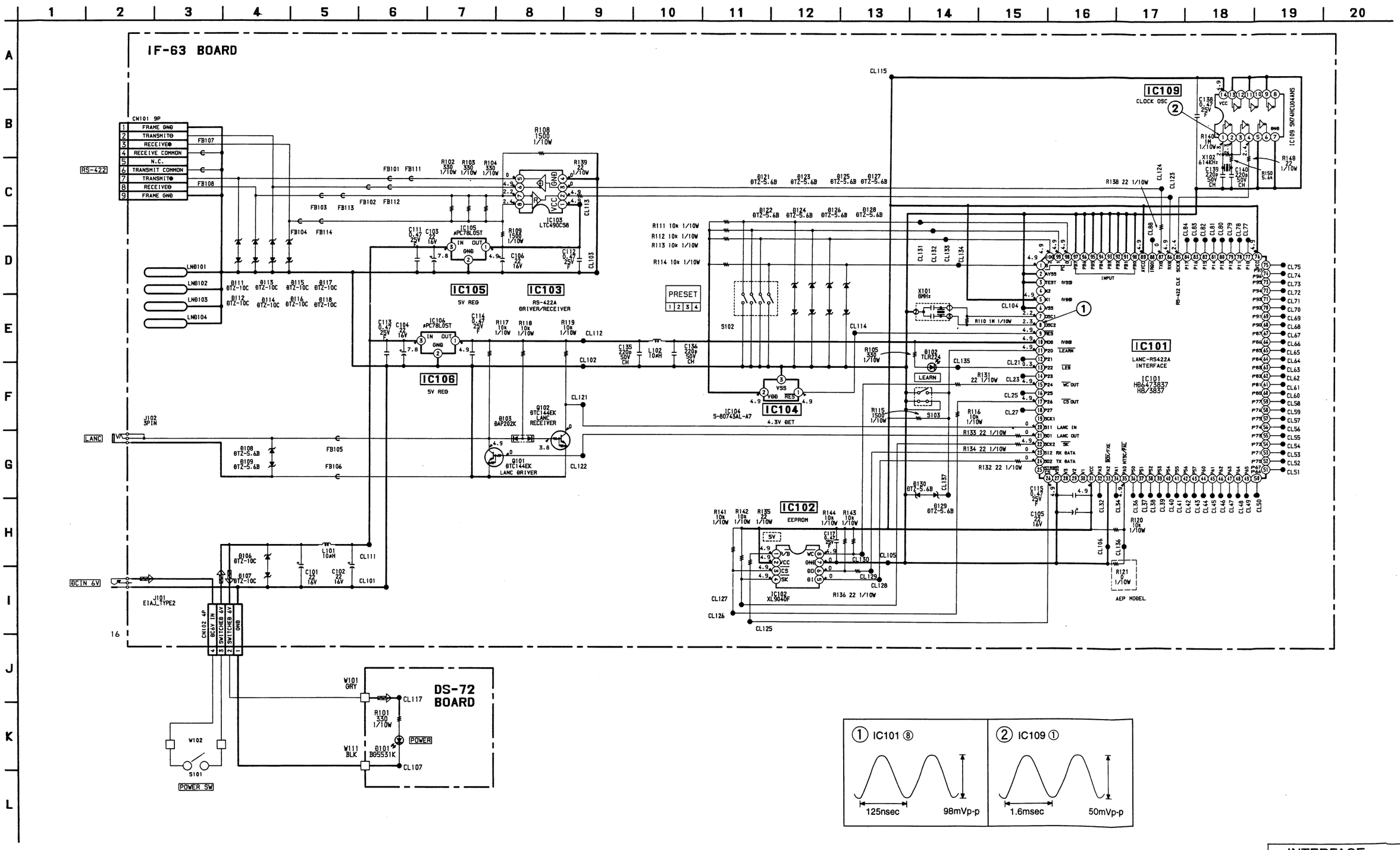


IF-63 BOARD

CN101	C–5	D124	A–4
CN102	D–1	D125	A–4
		D126	A–4
D102	B–5	D127	A–4
D103	B–3	D128	A–4
D106	D–1	D129	A–4
D107	D–1	D130	A–4
D108	B–5		
D109	B–5	IC101	B–2
D111	C–4	IC102	B–3
D112	B–4	IC103	B–3
D113	C–4	IC104	C–2
D114	B–4	IC105	D–3
D115	C–4	IC106	C–3
D116	B–4	IC109	C–1
D117	D–4		
D118	D–4	Q101	B–3
D121	A–4	Q102	B–3
D122	A–4		
D123	A–4		

IF-63 (INTERFACE), DS-72 (LED) SCHEMATIC DIAGRAM

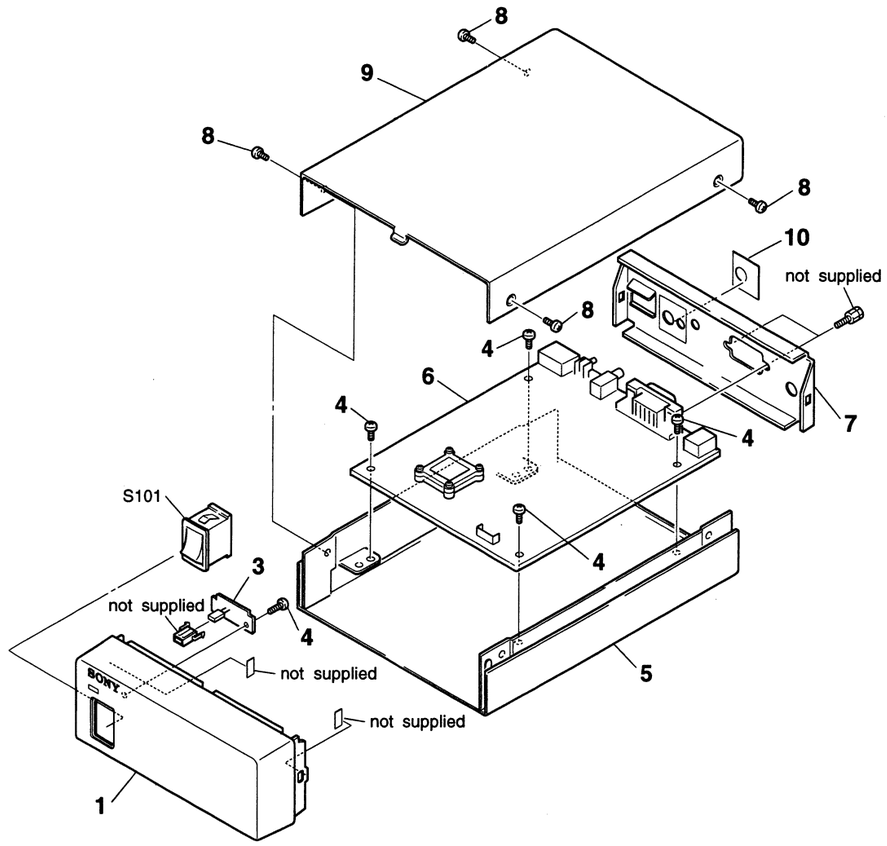
— Ref. No. IF-63 Board; 2,000 Series, DS-72 Board; 1,000 Series —



SECTION 5
EXPLODED VIEW

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) ... (RED)
  ↑ Parts color ↑ Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.



Ref. No.	Part No.	Description	Remarks
1	3-942-398-21	PANEL, FRONT	
* 3	A-7072-322-A	DS-72 BOARD, COMPLETE	
4	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
* 5	X-3942-978-1	CASE ASSY, LOWER	
* 6	A-7072-323-A	IF-63 BOARD, COMPLETE (US)	
* 6	A-7072-324-A	IF-63 BOARD, COMPLETE (AEP)	

Ref. No.	Part No.	Description	Remarks
7	3-965-250-01	PANEL, REAR	
8	7-627-854-38	SCREW, PRECISION +P 2.6X5 TYPE3	
* 9	3-942-396-11	CASE, UPPER	
10	3-965-230-01	PLATE, ORNAMENTAL, REAR PANEL	
S101	1-553-575-21	SWITCH, SEESAW (POWER)	

DS-72 **IF-63**

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: µF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: µH
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...

Ref. No.	Part No.	Description			Remarks
*	A-7072-322-A	DS-72 BOARD, COMPLETE			
		**********			
		(Ref.No.1,000 Seriese)			
		< DIODE >			
D101	8-719-918-87	LED	BG5531K (POEWR)		
		< RESISTOR >			
R101	1-216-037-00	METAL CHIP	330	5% 1/10W	
*	A-7072-323-A	IF-63 BOARD, COMPLETE (US)			
		**********			
*	A-7072-324-A	IF-63 BOARD, COMPLETE (AEP)			
		**********			
		(Ref.No.2,000 Seriese)			
		< CAPACITOR >			
C101	1-126-395-11	ELECT	22uF	20% 16V	
C102	1-126-395-11	ELECT	22uF	20% 16V	
C103	1-126-395-11	ELECT	22uF	20% 16V	
C104	1-126-395-11	ELECT	22uF	20% 16V	
C105	1-126-395-11	ELECT	22uF	20% 16V	
C106	1-126-395-11	ELECT	22uF	20% 16V	
C111	1-164-005-11	CERAMIC CHIP	0.47uF	25V	
C112	1-164-005-11	CERAMIC CHIP	0.47uF	25V	
C113	1-164-005-11	CERAMIC CHIP	0.47uF	25V	
C114	1-164-005-11	CERAMIC CHIP	0.47uF	25V	
C115	1-164-005-11	CERAMIC CHIP	0.47uF	25V	
C117	1-164-005-11	CERAMIC CHIP	0.47uF	25V	
C135	1-163-125-00	CERAMIC CHIP	220PF	5% 50V	
C136	1-163-125-00	CERAMIC CHIP	220PF	5% 50V	
C138	1-164-005-11	CERAMIC CHIP	0.47uF	25V	
C139	1-163-125-00	CERAMIC CHIP	220PF	5% 50V	
C140	1-163-125-00	CERAMIC CHIP	220PF	5% 50V	

Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
CN101	1-573-005-21	CONNECTOR, D-SUB 9P (RS-422)	
* CN102	1-564-507-11	PLUG, CONNECTOR 4P	
		< DIODE >	
D102	8-719-820-12	DIODE TLR224	
D103	8-719-914-44	DIODE DAP202K	
D106	8-719-978-50	DIODE DTZ-TT11-10C	
D107	8-719-978-50	DIODE DTZ-TT11-10C	
D108	8-719-977-03	DIODE DTZ5.6B	
D109	8-719-977-03	DIODE DTZ5.6B	
D111	8-719-978-50	DIODE DTZ-TT11-10C	
D112	8-719-978-50	DIODE DTZ-TT11-10C	
D113	8-719-978-50	DIODE DTZ-TT11-10C	
D114	8-719-978-50	DIODE DTZ-TT11-10C	
D115	8-719-978-50	DIODE DTZ-TT11-10C	
D116	8-719-978-50	DIODE DTZ-TT11-10C	
D117	8-719-978-50	DIODE DTZ-TT11-10C	
D118	8-719-978-50	DIODE DTZ-TT11-10C	
D121	8-719-977-03	DIODE DTZ5.6B	
D122	8-719-977-03	DIODE DTZ5.6B	
D123	8-719-977-03	DIODE DTZ5.6B	
D124	8-719-977-03	DIODE DTZ5.6B	
D125	8-719-977-03	DIODE DTZ5.6B	
D126	8-719-977-03	DIODE DTZ5.6B	
D127	8-719-977-03	DIODE DTZ5.6B	
D128	8-719-977-03	DIODE DTZ5.6B	
D129	8-719-977-03	DIODE DTZ5.6B	
D130	8-719-977-03	DIODE DTZ5.6B	
		< FERRITE BEAD >	
FB101	1-412-390-21	INDUCTOR CHIP 0uH	
FB102	1-412-390-21	INDUCTOR CHIP 0uH	
FB103	1-412-390-21	INDUCTOR CHIP 0uH	
FB104	1-412-390-21	INDUCTOR CHIP 0uH	
FB105	1-412-390-21	INDUCTOR CHIP 0uH	

Ref. No.	Part No.	Description				Remarks
FB106	1-412-390-21	INDUCTOR CHIP 0uH				
FB107	1-412-390-21	INDUCTOR CHIP 0uH				
FB108	1-412-390-21	INDUCTOR CHIP 0uH				
FB111	1-412-390-21	INDUCTOR CHIP 0uH				
FB112	1-412-390-21	INDUCTOR CHIP 0uH				
FB113	1-412-390-21	INDUCTOR CHIP 0uH				
FB114	1-412-390-21	INDUCTOR CHIP 0uH				
		< IC >				
IC101	8-759-346-82	IC HD6473837H-A29				
IC102	8-759-335-86	IC XL-9040F-E2				
IC103	8-759-289-43	IC LTC490CS8				
IC104	8-759-042-02	IC S80743AL-A7-S				
IC105	8-759-150-61	IC uPC78L05T				
IC106	8-759-150-61	IC uPC78L05T				
IC109	8-759-927-29	IC SN74HCU04ANS				
		< JACK >				
J101	1-568-727-31	JACK, DC (DC IN 6V)				
J102	1-691-258-11	JACK (LANC)				
		< COIL >				
L101	1-412-029-11	INDUCTOR CHIP 10uH				
L102	1-412-029-11	INDUCTOR CHIP 10uH				
		< TRANSISTOR >				
Q101	8-729-901-01	TRANSISTOR DTC144EK				
Q102	8-729-901-01	TRANSISTOR DTC144EK				
		< RESISTOR >				
R102	1-216-037-00	METAL CHIP	330	5%	1/10W	
R103	1-216-037-00	METAL CHIP	330	5%	1/10W	
R104	1-216-037-00	METAL CHIP	330	5%	1/10W	
R105	1-216-037-00	METAL CHIP	330	5%	1/10W	
R108	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R109	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R110	1-216-121-91	METAL GLAZE	1M	5%	1/10W	
R111	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R112	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R113	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R114	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R115	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R116	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R117	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R118	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R119	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R120	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R121	1-216-295-00	METAL CHIP	0	5%	1/10W	(AEP)
R131	1-216-009-00	METAL CHIP	22	5%	1/10W	
R132	1-216-009-00	METAL CHIP	22	5%	1/10W	
R133	1-216-009-00	METAL CHIP	22	5%	1/10W	
R134	1-216-009-00	METAL CHIP	22	5%	1/10W	
R135	1-216-009-00	METAL CHIP	22	5%	1/10W	
R136	1-216-009-00	METAL CHIP	22	5%	1/10W	
R138	1-216-009-00	METAL CHIP	22	5%	1/10W	
R139	1-216-009-00	METAL CHIP	22	5%	1/10W	
R140	1-216-121-91	METAL GLAZE	1M	5%	1/10W	
R141	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R142	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R143	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R144	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R148	1-216-009-00	METAL CHIP	22	5%	1/10W	
R150	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
		< SWITCH >				
S102	1-572-698-11	SWITCH, DIP (LEVER TYPE) (4P) (PRESET)				
S103	1-571-914-21	SWITCH, KEY BOARD (LANC)				
		< VIBRATOR >				
X101	1-579-125-11	VIBRATOR, CERAMIC (8MHz)				
X102	1-567-870-11	OSCILLATOR, CERAMIC (614KHz)				

MISCELLANEOUS

****

Ref. No.	Part No.	Description
S101	1-553-575-21	SWITCH, SEESAW (POWER)

ACCESSORIES & PACKING MATERIALS

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⚠	1-465-265-31	ADAPTOR, AC (AC-64NV) (US)
⚠	1-465-267-21	ADAPTOR, AC (AC-64N(AE)) (AEP)
	1-574-316-11	CORD, CONNECTION (LANC CORD) (2.1m)
*	2-366-919-01	BAG, PROTECTION
	3-800-105-11	MANUAL, INSTRUCTION (JAPANESE/ENGLISH/FRENCH/GERMAN)
*	3-942-531-01	CUSHION
*	3-942-532-51	INDIVIDUAL CARTON
	3-966-363-01	MASTER CARTON, 5 SETS

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

TERMINAL FUNCTION OF INTERFACE (IC101 : HD6473837H-A29)

Pin No.	Signal	I/O	Function		
1	PC3	I	PRESET SW No.4		
2	AVSS	I	GND (analog)		
3	TEST	I	TEST terminal (Vss)		
4	X2	O	N.C.		
5	X1	I			
6	VSS	I	GND		
7	OSC1	I	Master clock input (8MHz) : LANC Communication		
8	OSC2	O	Master clock output (8MHz) : LANC Communication		
9	$\overline{RES}$	I	L : Rest H : Ready		
10	MOD	I	N.C.(VDD)		
11	$\overline{LEARN}$	I	L : Learn mode H :Normal mode		
12	P21	I/O	N.C.		
13	$\overline{LED}$	O	POWER ON : out light	LEARN mode : Flashing	After Memory : on a light
14	P23	I/O	N.C.		
15	$\overline{WC}$ OUT	O	EEPROM write control		
16	P25	I/O	N.C.		
17	$\overline{CS}$ OUT	O	EEPROM CS		
18	P27	I/O	N.C.		
19	SCK1	I/O	N.C.		
20	LANC IN	I	LANC data (Receive)		
21	LANC OUT	O	LANC data (Transmission)		
22	SCK2	O	Serial clock output from EEPROM		
23	RX DATA	O	Serial data input from EEPROM		
24	TX DATA	I	Serial data output from EEPROM		
25	STRB	O	N.C.		
26	$\overline{CS}$	I	EEPROM READY/BUSY		
27	VSS	I	GND		

Pin No.	Port	I/O	Function / Remarks
28	V3	I	N.C.
29	V2	I	N.C.
30	V1	I	N.C.
31	VCC	I	+5V
32	PA3	I/O	N.C.
33	PA2	I	L:IF-FXE1 H:FXE-120
34	PA1	I/O	N.C.
35	AP0	I	L:PAL H:NTSC
36～43	P50～P57	I/O	N.C.
44～51	P60～P67	I/O	N.C.
52～59	P70～P77	I/O	N.C.
60～67	P80～P87	I/O	N.C.
68～75	P90～P97	I/O	N.C.
76	VCC	I	+5V
77～84	P10～P17	I/O	N.C.
85	SCK3	I	RS-422A Serial clock (614.4KHz)
86	RXD	I	RS-422A data (Receive)
87	TXD	O	RS-422A data (Transmission)
88	$\overline{IRQ0}$	I	N.C.
89	AVCC	I	+5V (Analog)
90～97	PB0～PB7	I	N.C.
98	PC0	I	PRESET SW No.1
99	PC1	I	PRESET SW No.2
100	PC2	I	PRESET SW No.3

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